

NX6414EH

LASER DIODE

1 490 nm InGaAsP MQW-DFB LASER DIODE

FOR GIGABIT ETHERNET AND Point to Point APPLICATION

R08DS0042EJ0100

Rev.1.00

Jun 10, 2011

DESCRIPTION

The NX6414EH is a 1 490 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

APPLICATIONS

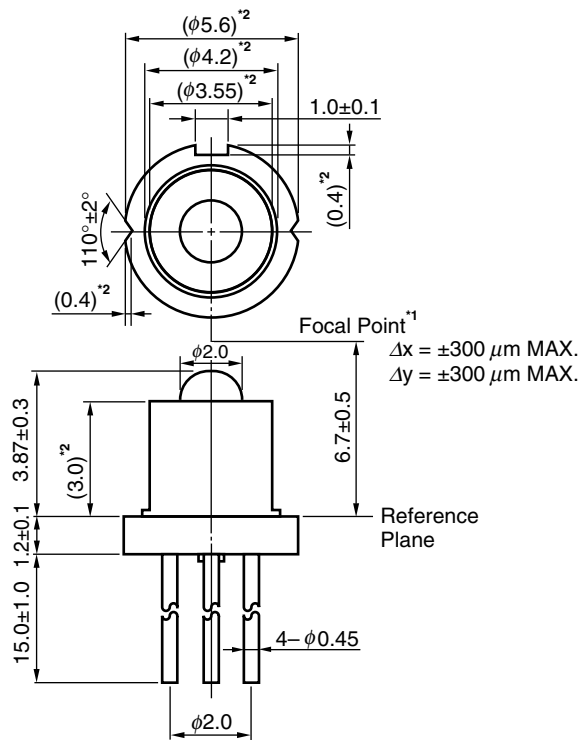
- Gigabit Ethernet
- Point to Point

FEATURES

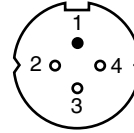
- | | |
|------------------------------------|-------------------------------------------|
| • Optical output power | $P_o = 14.0 \text{ mW}$ |
| • Low threshold current | $I_{th} = 10 \text{ mA}$ |
| • Differential efficiency | $\eta_d = 0.25 \text{ W/A}$ |
| • Wide operating temperature range | $T_c = -40 \text{ to } +85^\circ\text{C}$ |
| • InGaAs monitor PIN-PD | |
| • CAN package | $\phi 5.6 \text{ mm}$ |
| • Focal point | 6.7 mm |



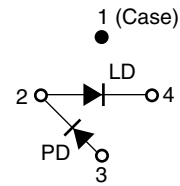
PACKAGE DIMENSIONS (UNIT: mm)



BOTTOM VIEW



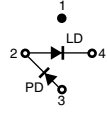
PIN CONNECTIONS



*1 Focal Point: A point to get maximum optical output power from fiber.

*2 () indicates nominal dimension.

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX6414EH	4-pin CAN with ball lens cap	

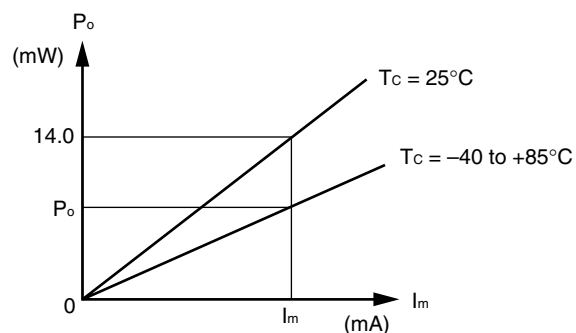
- Remarks**
1. The color of ball lens cap might be observed differently.
 2. The hermetic test will be performed as AQL 1.0%.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	20	mW
Forward Current of LD	I_F	150	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10.0	mA
Reverse Voltage of PD	V_R	15	V
Operating Case Temperature	T_C	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

ELECTRO-OPTICAL CHARACTERISTICS ($T_C = -40$ to $+85^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	$P_o = 14.0$ mW		1.1	1.6	V
Threshold Current	I_{th}	$T_C = 25^\circ\text{C}$	5	10	15	mA
			3		50	
Differential Efficiency	η_d	$P_o = 14.0$ mW	0.14		0.6	W/A
Peak Emission Wavelength	λ_p	CW, $P_o = 14.0$ mW	1 480		1 500	nm
Side Mode Suppression Ratio	SMSR	$P_o = 14.0$ mW	30	45		dB
Focal Distance	D_f		6.2	6.7	7.2	mm
Rise Time	t_r	$I_b = I_{th}$, 10-90%		0.1	0.2	ns
Fall Time	t_f	$I_b = I_{th}$, 90-10%		0.1	0.2	ns
Monitor Current	I_m	$V_R = 1.5$ V, $P_o = 14.0$ mW	150	500	1 200	μA
Monitor Dark Current	I_D	$V_R = 5$ V			100	nA
Tracking Error ^{*1}	γ	$I_m = \text{const.}$ (@ $P_o = 14.0$ mW, $T_C = 25^\circ\text{C}$)	-1.0		1.0	dB

*1 Tracking Error: γ 

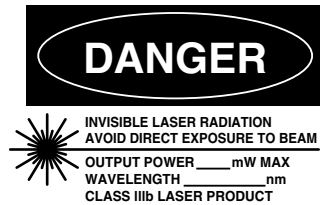
$$\gamma = \left| 10 \log \frac{P_o}{14.0} \right| [\text{dB}]$$

REFERENCE

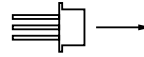
Document Name	Document No.
Opto-Electronics Devices Pamphlet ^{*1}	PX10160E

^{*1} Published by the former NEC Electronics Corporation.

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

Warning Laser Beam	<p>A laser beam is emitted from this diode during operation. The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight.</p> <ul style="list-style-type: none"> • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	<p>This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> • Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below. <ol style="list-style-type: none"> 1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials. 2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal. • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth.

Revision History	NX6414EH Data Sheet
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Rev.	Date	Description	
		Page	Summary
1.00	Jun 10, 2011	–	First edition issued

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